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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,456	11/06/2003	Steven Walak	12013/47701	8550

23838 7590 11/21/2006

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EXAMINER

VORTMAN, ANATOLY

ART UNIT PAPER NUMBER

2835

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Interview Summary</b>	Application No.	Applicant(s)	
	10/701,456	WALAK, STEVEN	
	Examiner	Art Unit	
	Anatoly Vortman	2835	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Anatoly Vortman/AU 2835. (3) \_\_\_\_\_  
 (2) Steven S. Yu, Reg. No. 58,776. (4) \_\_\_\_\_

Date of Interview: 16 November 2006.

Type: a) ☒ Telephonic b) ☐ Video Conference  
 c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.  
 If Yes, brief description: \_\_\_\_\_

Claim(s) discussed: 36.

Identification of prior art discussed: WO 97/04895 to Zadno-Azizi et al.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant has faxed a proposed amendment for consideration. Examiner has indicated that claims are directed to two distinct species and that restriction would be required if amendment is entered. Further, examiner has indicated that claim 36, as amended, appears to be distinct from WO 97/04895 to Zadno-Azizi et al., because of the recitation of "one or more finger portions", however further search would be required.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section.713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

  
**ANATOLY VORTMAN**  
**PRIMARY EXAMINER**

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

\_\_\_\_\_  
 Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

#### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132).

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.



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## Fax Transmission

From: Steven S. Yu Date November 16, 2006  
Direct Dial: 202.220.4222 Fax: 202.220.4201  
Serial No.: 10/701,456 Total number of pages: 5 pages  
Atty. Docket No.: 12013/47701 (including cover)

Please deliver to:

Name	Company	Fax	Phone
Examiner Anatoly Vortman	US Patent and Trademark Office	571.273.2047	

Attached are proposed amendments for interview purposes only.

☒ Original will not follow ☐ Original will follow by ☐ Regular Mail ☐ Overnight Delivery ☐ Hand Delivery

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Please, do not index, 11/16/06, A-1

10/1701,456

**Proposed Amendments for Interview  
NOT TO BE PUT IN THE RECORD**

1-35. (Canceled)

36. (Currently amended) A two-way actuator formed of composite material, wherein the composite material comprises:

- (i) a first component comprising a first shape memory alloy; and
- (ii) a second component comprising an elastic metal;

wherein said first component and said second component are metallurgically bonded together to form said composite material;

wherein said two-way actuator has a first shape at a temperature equal to or above a temperature  $A_f$  at which transformation of the first component from martensite to austenite is complete, and said two-way actuator has a second shape at a temperature equal to or below a temperature  $M_f$  at which transformation of the first component from austenite to martensite is complete;

wherein at a temperature equal to or above  $A_f$ , said first shape memory alloy exerts a force against said second component which elastically deforms said second component so that said two-way actuator has said first shape;

wherein at a temperature equal to or below  $M_f$ , said force from said first shape memory alloy is at least partially released and a bias force of said second component acting on said first shape memory alloy returns the two-way actuator to said second shape; and

wherein the two-way actuator has one or more finger portions for grasping onto body tissue.

(p. 10, ¶ 40)

~~wherein  $A_f$  and  $M_f$  allow actuation of the two-way actuator at temperatures suitable for use on a subject's body tissue.~~

37. (Currently amended) The two-way actuator of claim 36, wherein  $M_f$  is greater than approximately  $0^\circ\text{C}$ .

38. (Currently amended) The two-way actuator of claim 36, wherein  $M_f$  is greater than approximately  $35^\circ\text{C}$  body temperature.

39. (Currently amended) The two-way actuator of claim 36, wherein  $A_f$  is greater than approximately 35° C ~~less than approximately 100° C~~. (p. 11, ¶ 42 ; ¶ 43)

40. (Currently amended) The two-way actuator of claim 36, wherein the first shape memory alloy component is nitinol.

41. (Currently amended) The two-way actuator of claim 36, wherein the elastic metal second component is selected from the group consisting of a second shape memory alloy, stainless steel, cobalt alloy, refractory metal or alloy, precious metal, titanium alloy, nickel superalloy, and combinations thereof.

42. (Currently amended) The two-way actuator of claim 41, wherein the elastic metal second component is selected from the group consisting of nitinol, stainless steel 316, austenitic stainless steels, precipitation hardenable steels including 17-4PH, 15-4PH and 13-8Mo, MP35N, ELGILOY®, Ta, Ta-10W, W, W-Re, Nb, Nb1Zr, C-103, Cb-752, FS-85, T-111, Pt, Pd, beta Ti, Ti6Al4V, Ti5Al2.5Sn, Beta C, Beta III, and FLEXIUM®.

43. (Currently amended) The two-way actuator of claim 36, wherein the elastic metal has a modulus of elasticity equal to or greater than that of stainless steel ~~wherein the first component and the second component form a bi-layer, tri-layer, or intermittent layer structure~~. (p. 5, ¶ 23)

44. (Canceled) ~~The two-way actuator of claim 43, wherein the layered structure forms a tube.~~

45. (Canceled) ~~The two-way actuator of claim 43, wherein the layered structure forms a sheet.~~

46. (Canceled) ~~The two-way actuator of claim 43, wherein the layered structure has at least four layers.~~

47. (Canceled) ~~The two-way actuator of claim 36, wherein the first component and the second component form a multilayered solid clad structure.~~
48. (Canceled)) ~~The two-way actuator of claim 47, wherein the first component is clad around a core of the second component.~~
49. (Canceled) ~~The two-way actuator of claim 47, wherein the second component is clad around the first component.~~
50. (Canceled) ~~The two-way actuator of claim 36, formed into a spring, coil, rod, wire, beam, strip, membrane, or washer.~~
51. (New) An article of manufacture, comprising:  
a hollow tube comprising an elastic metal; and  
a plurality of discrete elements disposed within the wall of the hollow tube such that each discrete element is not in contact with another discrete element;  
wherein the discrete elements comprise a shape memory alloy.
52. (New) The article of claim 51, wherein each of the discrete elements are in the form of a strip that is longitudinally disposed within the wall of the hollow tube.
53. (New) The article of claim 51, wherein the plurality of discrete elements are metallurgically bonded to the hollow tube.
54. (New) The article of claim 51, wherein the article has a first shape at a temperature equal to or above a temperature  $A_f$  at which transformation of the shape memory alloy from martensite to austenite is complete;  
wherein the article has a second shape at a temperature equal to or below a temperature  $M_f$  at which transformation of the shape memory alloy from austenite to martensite is complete;  
wherein at a temperature equal to or above  $A_f$ , the discrete elements exert a force against the hollow tube to elastically deform the hollow tube so that the article assumes the first shape;
- Fig. 4C

and

wherein at a temperature equal to or below  $M_f$ , the force from the discrete elements is at least partially released so that the article assumes the second shape.

55. (New) The article of claim 51, wherein the shape memory alloy is nitinol.

56. (New) The article of claim 51, wherein the elastic metal is selected from the group consisting of a second shape memory alloy, stainless steel, cobalt alloy, refractory metal or alloy, precious metal, titanium alloy, nickel superalloy, and combinations thereof.

57. (New) The article of claim 51, wherein the elastic metal is selected from the group consisting of nitinol, stainless steel 316, austenitic stainless steels, precipitation hardenable steels including 17-4PH, 15-4PH and 13-8Mo, MP35N, ELGILOY, Ta, Ta-10W, W, W-Re, Nb, Nb1Zr, C-103, Cb-752, FS-85, T-111, Pt, Pd, beta Ti, Ti6Al4V, Ti5Al2.5Sn, Beta C, Beta III, and FLEXIUM.